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10/568,283

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Masanori Wada

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EXAMINER

ROJAS, OMAR R

ART UNIT

PAPER NUMBER

2874

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03/18/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|------------------------------------|--|
| Office Action Summary | Application No. 10/568,283 | Applicant(s) WADA ET AL. | |
| | Examiner OMAR ROJAS | Art Unit 2874 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input checked="" type="checkbox"/> Other: <u>Detailed Action</u> . |

DETAILED ACTION

Response to Amendment

1. With regards to the amendment filed on 12/17/2007, all the requested changes to the claims have been entered. Claims 1-20 are pending.

Response to Arguments

2. Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1, 4, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patent No. US 6,246,813 B1 to Zheng in view of JP 2003-222764 to Morooka et al. ("Morooka"). The Morooka document was applied in a prior Office action.

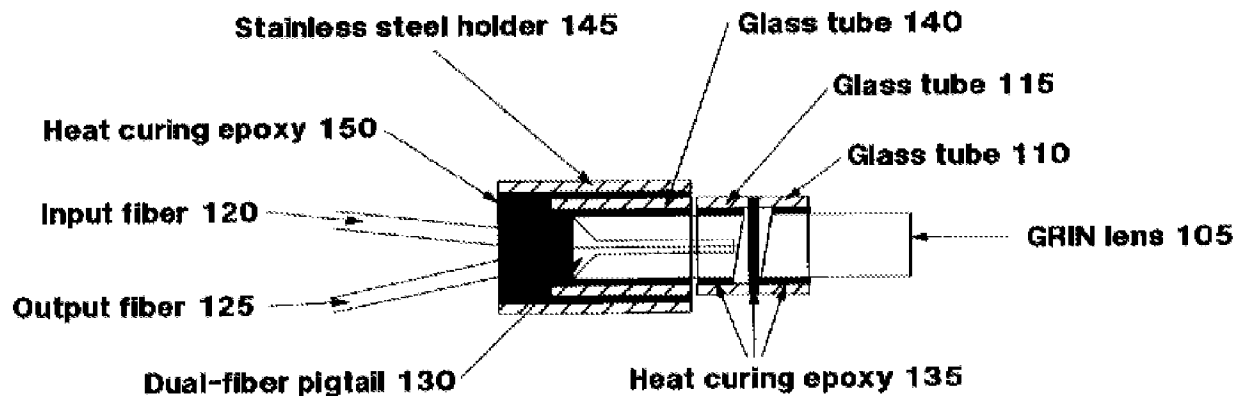
The Morooka document was submitted as part of Document "AJ" in the Information Disclosure Statement ("IDS") filed May 16, 2006. Document AJ further includes an English translation of the Morooka document and has been relied upon by the examiner.

In re claims 1 and 6, the Zheng patent discloses an optical receptacle (Figure 3B) comprising:

a precision glass sleeve **140**;

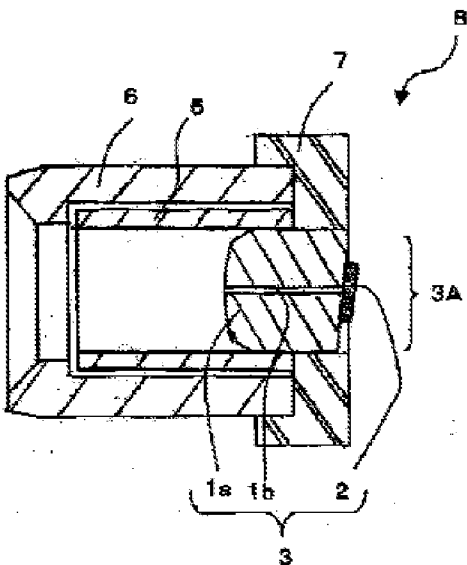
a pigtail/stub **130** provided with an optical fiber, said stub **130** being fixed only to an inner hole of the precision sleeve **140** and being fixed to one end of said inner hole through an adhesive **150**;

a sleeve holder 145 fixed to an outer periphery of the precision sleeve 140 through an adhesive 150. Figure 3B of Zheng is reproduced below.



Thus, Zheng only differs from claims 1 and 6 in that Zheng does not disclose an outer peripheral face of the stub 130 or the inner hole of the precision sleeve 140 has a surface roughness, "Ra", of 0.1 micrometers or more and 0.5 micrometers or less. Morooka, however, teaches both an outer peripheral face of his stub 3 and the inner hole of his precision sleeve 5 have a surface roughness "Ra" value of 0.2 micrometers or less. See Document AJ: page 7, paragraph [0036].

Figure 1 of Morooka is reproduced below.



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The stub and sleeve of Zheng could have easily been modified to have the surface roughness taught by Morooka in order to facilitate insertion of the stub into the sleeve or to reduce connection losses as mentioned by Morooka. *See* Document AJ: page 7, paragraph [0036].

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to obtain the invention specified by claims 1 and 6 in view of Zheng combined with Morooka.

In re claim 4, Morooka discloses a bore tolerance between the sleeve **5** and a ferrule **1a** of 1 micrometer or less (Document AJ: page 7, paragraph [0036]). Therefore, claim 4 is unpatentable over Zheng in view of Morooka for the same reasons mentioned with respect to claims 1 and 6.

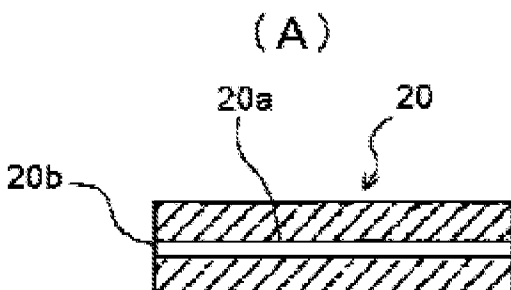
10. Claim 2, 3, 5, 7, and 9-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zheng combined with Morooka as applied to claims 1 and 4 above, and further in view of JP 2003-149502 to Saito et al. ("Saito"). The Saito document was applied in a prior Office action.

The Saito document was submitted as part of Document "AI" in the IDS filed May 16, 2006. Document AI further includes an English translation of the Saito document that has been relied upon by the examiner.

In re claims 2 and 10, Zheng combined with Morooka only differs from the claims in that Zheng does not expressly teach that an outer periphery of his stub **130** or the inner hole of his precision sleeve **140** has a surface roughness Ra value of more than 0.2 μm and a surface roughness Ry

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value of $4.0\text{ }\mu\text{m}$ or less, and a difference between an average line and a peak line of surface roughness is $2.0\text{ }\mu\text{m}$ or less. Saito, however, teaches an inner hole **20a** of a capillary tube **20** having a surface roughness R_a , a surface roughness R_y , and a difference between an average line and a peak line of surface roughness that overlap the values recited by claim 2. *See* Document AI, page 10, paragraph [0040]. Figure 1 of Saito is reproduced below.



Although Saito is primarily concerned with the alignment between his capillary tube **20** and an optical fiber, the same general principle would have also applied to Zheng's precision sleeve **140** and stub **130**. In other words, one of ordinary skill in the art would have easily recognized that Saito's technique for optimizing alignment between an optical fiber and a cylindrical tube would also be relevant to aligning Zheng's fiber stub **130** and sleeve **140**. The motivation for combining Saito with Zheng would have been to lower optical connection losses. *See* page 1 of Document AI. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to obtain the invention specified by claims 2 and 10 in view of Zheng combined with Morooka, and further in view of Saito.

In re claims 3 and 11, Zheng combined with Morooka only differ from the claim in that Zheng does not expressly teach that his optical fiber has a concentricity of $0.5\text{ }\mu\text{m}$ or less with respect to

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the outer periphery of his stub **130**. Saito, however, teaches an optical fiber having a concentricity of 0.7 micrometers or less with respect to the outer periphery of a stub/capillary tube **20**. *See* page 10, paragraph [0040] of Document AI. The motivation for combining Saito with Zheng and Morooka would have been to optimize the alignment between Zheng's optical fiber and stub. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to obtain the invention specified by claims 3 and 11 in view of Zheng combined with Morooka, and further in view of Saito.

In re claim 5, Zheng combined with Morooka only differs from the claim in that Zheng does not expressly teach a ferrule formed of crystallized glass. Saito, however, teaches a ferrule **21** formed of crystallized glass is used to secure an optical fiber. *See* page 10, paragraph [0042] of Document AI. The motivation for combining Saito with Zheng and Morooka would have been to lower optical connection losses. *See* page 1 of Document AI. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to obtain the invention specified by claim 5 in view of Zheng combined with Morooka, and further in view of Saito.

In re claim 7, Zheng combined with Morooka further differs from the claim in that neither reference teaches crystallized glass having a crystal grain size and a crystal amount as specified by the claim. Saito, however, also teaches that his crystallized glass capillary tube **20** comprises the same crystal grain size and crystal amount specified by claim 7. *See* page 13, paragraph [0057] of Document AI. Therefore, it would have also been obvious to one of ordinary skill in

the art at the time of the claimed invention to obtain the invention specified by claim 7 in view of Zheng combined with Morooka and Saito for the same reasons mentioned with respect to claim 5.

In re claims 9 and 12-20, because the limitations of each of these claims are also encompassed by one or more of claims 2, 3, 5, 7, 10, and 11, they are also considered obvious for analogous reasons to those mentioned with respect to claims 2, 3, 5, 7, 10, and 11.

11. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zheng combined with Morooka as applied to claim 1 above, and further in view of Publication No. US 2002/0074086 A1 to Nakamura et al. ("Nakamura"). The Nakamura document was applied in a prior Office action.

In re claim 8, Zheng combined with Morooka only differs from the claim in that Zheng does not disclose his adhesive **150** contains 10 vol% or more of fillers having a maximum particle size of 0.5 μm or less and an average particle size of 0.3 μm or less. Nakamura, however, teaches an adhesive includes reinforcing agents (i.e., "fillers") in an amount of 40 wt % or less (i.e., 10 vol% or more) and having a particle diameter of 0.5 μm or less. *See* paragraph [038] of Nakamura. Note that an average particle size of 0.3 μm or less is considered inherently within the scope of Nakamura because Nakamura specifically teaches an overlapping scope of 0.5 μm or less for the particle diameter. The motivation or suggestion for combining would have been to improve the strength of the adhesive as mentioned by Nakamura in paragraph [038]. Therefore, it would have also been obvious to one of ordinary skill in the art at the time of the claimed

invention to obtain the invention specified by claim 8 in view of Zheng combined with Morooka, and further in view of Nakamura.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Omar Rojas whose telephone number is (571) 272-2357. The examiner can normally be reached on Monday-Friday (9:00PM-5:00PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rod Bovernick, can be reached on (571) 272-2344. The official facsimile number for regular and After Final communications is (571) 273-8300. The examiner's RightFAX number is (571) 273-2357.

Information regarding the status of an application may be obtained from the Patent

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Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Omar Rojas/

Patent Examiner, Art Unit 2874

or

March 20, 2008

/Sung H. Pak/

Primary Examiner, Art Unit 2874